REMARKS

The drawings have been objected to under 37 CFR §1.83(a) for allegedly failing to show every feature of the invention specified in the claims. In particular, paragraph 2 of the Office Action indicates that the one rotor portion being supported from axially opposite sides by the support mechanism as recited in Claim 1, and the synthesize magnetic pole position as recited in Claims 18 and 20 must be shown in the drawings, or the corresponding features cancelled from the claims. In addition, the specification has been objected to as failing to provide proper antecedent basis for the claimed subject matter under 37 CFR §1.75(d)(1), referring in particular to the ring member recited in Claim 8 and the synthesized magnetic pole position as recited in Claim 18. Furthermore, Claims 1-26 have been rejected under the written description requirement of 35 USC §112, first paragraph based on the alleged failure of the specification to support the recitation of a synthesized magnetic pole position, or the one rotor portion being supported from axially opposite sides by a support mechanism. Finally, Claims 1-26 have been further rejected under the enablement requirement of 35 USC §112, first paragraph based on the matter set forth above. Applicants respectfully traverse these grounds of rejection and objection.

With regard to the recitation in Claim 1 that one rotor portion is supported from axially opposite sides by a support mechanism, Applicant notes that this feature of the invention is illustrated in Figure 8 of the drawing. In particular, the rotor portion (20B) is supported by the coil spring (48) and the

stopper plate (24) connected to the electromagnetic clutch (44) at opposite sides of the rotor (20B). In this regard, Applicants refer in particular to page 30, line 1 through page 38, line 23 of the original specification.

The phrase "synthesized magnetic pole position", recited in Claims 18 and 20 has been changed to "compound magnetic pole position". In this regard, Applicants respectfully submit that a person skilled in the art would understand that the magnetic fields produced by the respective field magnets of the first and second rotor portions (20A, 20B) are combined and produce a resultant magnetic field. Such a person would also understand that the compound magnetic pole is a virtual magnetic pole that causes the resultant magnetic field.

With regard to the ring member recited in Claim 8, Applicants refer to the specification at page 18, lines 4-11 and page 31, lines 20-27, as well as Figures 2 and 8 of the drawings. (See also, Figure 16.) At page 18, for example, the specification explains that the second rotor portion 20B corresponds to a nut 62, which is shown for visualization purposes. Furthermore, it is also disclosed that "The shaft 22 has external thread formed on its outer circumferential surface. The second rotor portion 22B has internal thread on its inner circumferential surface so that the internal thread can be thread-engaged with the external thread formed on the shaft 22." Furthermore, as illustrated in Figure 8, the specification states at page 28, lines 20-27, that the nut member 23 has threads formed on its inner circumferential surface and is thread engaged with a threaded portion 23A formed on the outer circumferential surface of the shaft 22. Accordingly, Applicants respectfully submit that this feature of the invention is

fully and adequately disclosed to support the corresponding recitations in the claims. Thus, reconsideration and withdrawal of the grounds of objection and rejection set forth in paragraphs 2 through 5 of the Office Action are respectfully requested.

Claims 1 and 7 have been rejected under 35 USC §102(e) as anticipated by Bartel (U.S. Patent No. 6,191,561). In addition, Claims 12-14 have been rejected under 35 USC §103(a) as unpatentable over Bartel in view of Kober (U.S. Patent No. 3,233,133). Furthermore, Claims 21/1, 21/7/1, 22/21/1, 22/21/7/1, 23/1, 23/7/1, 24/1, 24/7/1, 25/1, 25/7/1, 26/1 and 26/7/1 have been rejected as unpatentable over Bartel, while Claims 21/12/1, 21/13/1, 21/14/13/1, 22/21/12/1, 22/21/13/1, 22/21/14/13/1, 23/12/1, 23/13/1, 23/14/13/1, 24/12/1, 24/13/1, 24/14/13/1, 25/12/1, 25/13/1, 25/14/13/1, 26/12/1, 26/13/1, and 26/14/13/1 have been rejected as unpatentable over Bartel in view of Kober. However, for the reasons set forth hereinafter, Applicants respectfully submit that the claims of record in this application distinguish over both Bartel and Kober, whether considered separately or in combination.

A rotational electric machine according to the present invention can generate high output torque in a low rotation speed when the machine is working as an electric motor such as an engine starter, and can generate high output power in a high rotation speed when the machine is working as a generator. In a rotational electric machine having a rotor provided with permanent magnets for the magnetic field, the direction of rotational torque induced in the rotor of the machine working as an electric motor is reverse to the

direction of rotational torque induced in the rotor of the machine working as a generator, in the same conditions of the directions of the magnetic field and current applied to the electric motor and the generator according to Fleming's left hand rule (for a motor) and right hand rule (for a generator). (See page 18, lines 11-19 of the specification, and page 19, line 13 to page 20, line 6 of the specification.)

The split rotor 20 is divided into the first and second rotor portions 20A and 20B. The first rotor portion 20A is fixed on the rotor shaft 22. The second rotor portion 20B is capable to move along the rotor shaft 22 while rotating around the shaft 22. The second rotor portion 20B moves along the rotation shaft 22 in accordance with a magnetic action force produced between said field magnets of said two rotor portions and a direction of torque induced on said split rotor.

When the machine works as a motor and the second rotor portion 20B rotates, the second rotor portion 20B moves to approach the first rotor portion 20A, and then the first and second rotor portions 20A and 20B may contact together and the same polarity magnetic poles are aligned between the first and second rotor portions 20A and 20B by a magnetic action force produced between the field magnets 21A and 21B of two rotor portions as shown in Figure 2. That is, the field magnets 21A and 21B of the first and second rotor portions 20A and 20B are integrated into one magnet so that the effective magnetic flux of the field magnet is maximized and the highest torque of the motor can be obtained. (See page 20, lines 7-23 of the specification.)

On the other side, when the machine works as a generator and the second rotor portion 20B rotates, the second rotor portion 20B moves to leave the first rotor portion 20A as shown in Figure 3. Hence, the quantity of effective magnetic flux generated by the permanent magnets is reduced. In other words, a field weakening effect is obtained. As a result, high output electric power is obtained from the machine working as a generator in high rotation speed. Further, the amount of the effective magnetic flux can be varied by changing the position of the stopper 24 on the shaft 22 by controlling the actuator 25. (See page 20, line 24 to page 21, line 17 of the specification.)

The Bartel reference discloses two separated magnets 82 and 84 inside of the main armature 88. The magnet 84 can be moved against the magnet 82 by rotating an electric motor including drag armature 90 and drag element 98 so as to vary the effective magnetic flux. An additional motor device (90, 98) is required for moving the magnet 84 from the magnet 82 in Bartel. However, according to the present invention, the second rotor portion 20B moves along the rotation shaft 22 in accordance with a magnetic action force produced between said field magnets of said two rotor portions and a direction of torque induced on said split rotor. No additional motor device for moving the second rotor portion 20B is required in the present invention.

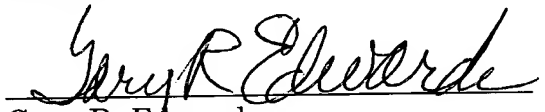
The Kober reference discloses two separate magnets 6 and 7 where are moved away from each other by centrifugal force induced in the rotating parts 115 and 120 attached on the rotating magnets so as to vary the output voltage of

the generator. Kober also requires a specific device or mechanism for moving the magnets. Kober does not teach that one of two magnets is moved in accordance with a magnetic action force produced between two magnets and a direction of torque induced on the rotor.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #381AS/50352).

Respectfully submitted,



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